1859 PUBLISHED WEEKLY 1920

JUL 26 1920
Smithsonian Deposit

AMERICAN GAS ENGINEERING JOURNAL

FORMERLY

AMERICAN GAS LIGHT JOURNAL

VOL. CXIII., No. 4
WHOLE No. 3255

NEW YORK, SATURDAY, JULY 24, 1920

Subscription $3 per year
$4 Canada $5 Foreign

Twin lines of 30" Cast Iron Pipe crossing a salt marsh where pipe of other material had failed in service.

THE CAST IRON PIPE PUBLICITY BUREAU, 1 Broadway, New York

INDEX TO CONTENTS, PAGE 69

ADVERTISERS' INDEX, PAGE 24

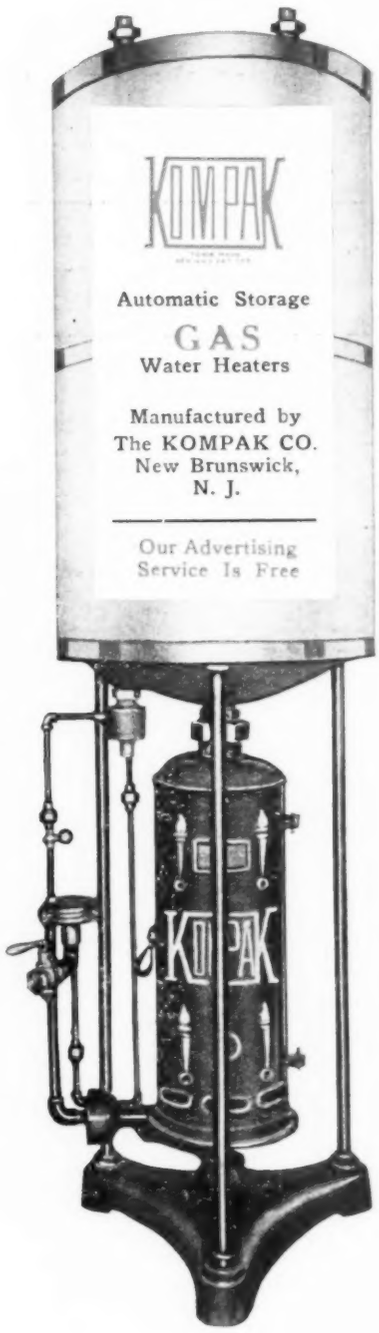
Future Profits

vs.

Immediate Profits

Kompak Automatic Storage Water Heaters have a small rate, long-hour burning gas consumption. You can eventually place a Kompak in every home, even on your small gas main streets and get the highest returns on your equipment investment. That's where *your future profits come in.*

Kompak Automatic Storage Water Heaters are connected to the original house meter and piping. They eliminate that large or extra meter, a saving of $30 on every heater installed. That's where *your immediate profits come in.*



BETTER ORDER NOW

M110

AMERICAN GAS ENGINEERING JOURNAL. July 24, 1920. Vol. CXIII, No. 4. Published Weekly by American Gas Light Journal, Inc., New York, N. Y. Subscription Price $3 per Year; $4 Canada; $5 Foreign.
Entered as second-class matter January 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

American
Gas Engineering Journal

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CXIII, No. 4 NEW YORK, JULY 24, 1920 Whole No. 3255

Use of Gas in Soldering Includes Variety of Industries

Removing Layers of Oxide During Soldering Process — Gas Plays Very Important Part in Preparation

By GILBERT C. SHADWELL

Gas is used to-day for a very large proportion of the work carried out in a variety of industries, classified under the general name of soldering. Curiously enough, however, the only information that appears available on this subject seems to be scattered through engineering and similar books of reference, whereas comparatively little has been said, concerning it, in the trade journals of the gas industry, except occasional mention of one or other of the different styles of soldering furnaces or other equipments employed.

If soldering consisted only of using a hot "iron" it would hardly be necessary to add any further words to those of the manufacturer of the goods in question, but it should be borne in mind that this is a subject of considerable extent and of far greater importance than would be the case if all of the soldering operations were alike or if the equipments or material used were the same in each instance.

Some of the Solders Employed

In this article, therefore, but little attention will be paid to the gas-burning equipments used—they have been considered in detail in the past—but more space will be devoted to a description of some of the solders employed, together with data on the operations involved so far as they will prove of interest to industrial salesmen.

It is scarcely necessary to say that the object of soldering is to unite two portions of the same metal or of different metals by means of a more fusible metal or metallic alloy, applied in a molten state and known by the name of solder. However, as the strength of the soldering depends on the nature of the solder used, the degree of strength required for the joint must be kept in view in choosing a solder.

It is also pretty common knowledge that the parts to be joined must be free from oxide and thoroughly clean; this is usually secured by filing, scraping, scouring or pickling with acids. The edges likewise have to fit exactly and they must likewise be heated to the melting point of the solder. The latter must have a lower melting point than either of the portions of metal that require to be joined, and if possible only those metals should be chosen for solder which form alloys with them. The solder should also as far as possible have the same color and approximately the same strength as the article whose edges are to be united.

Fluxes

To remove the layers of oxide which form during the process of soldering, various so-called fluxes are employed. These fluxes are melted and applied to the joint, and act partly to keep off the air, thus preventing oxidation, and partly reduce and dissolve the oxides themselves. The choice of a flux depends on the quantity of heat required for soldering.

Solders are classed as soft and hard solders. Soft solders also called tin solders or white solders, consists of soft, readily fusible metals or alloys and do not possess much strength. They are easy to handle on account of their great fusibility. Tin, lead-tin and alloys of tin, lead and bismuth are used for soft solder, pure tin being employed only for articles made of the same metal.

The addition of some lead makes the solder less fusible but cheaper, while that of bismuth lowers the melting point.

Soft solders are used for soldering easily fusible metals, such as Britannia metal, etc., also for soldering tin plate.

Gas plays a very important part in the preparation of solders and soft metal furnaces are being used to a greater extent all the time for that purpose.

Why Gas Is Desirable Fuel

Formerly the metals were melted together in graphite crucibles almost exclusively, but the regular cast iron pots supplied with the standard gas-fired soft metal furnaces to-day are entirely satisfactory for the work and the cost in pots as compared with crucibles is but a negligible fraction. The fact that gas is so easily controlled makes it a very desirable fuel because the temperature must be kept as low as possible while the metals composing the solder are being alloyed or blended.

Returning now to the subject of soldering proper, a soldering iron is usually used to melt the solder, but as other means are also employed they will also be dealt with later on. The "iron," or more strictly speaking copper, has to be kept as free from oxidation as possible and the part applied is usually tinned over.

The fluxes generally used in the soft soldering of metal are powdered rosin or a solution of chloride of zinc, alone or combined with sal ammoniac.

Soldering Fluids

A neutral soldering fluid can be prepared by mixing neutral zinc chloride, sal ammoniac and water or sugar of milk, milk, glycerine and water.

Another fluid is made by putting into an earthenware container some commercial muriatic (hydrochloric) acid and adding to this some zinc scraps. An excess of zinc is employed and it is added slowly so that the chemical reaction will not be too violent which might crack the container due to the heat evolved.

It is then allowed to stand for 24 hours. A portion is then placed in a small bottle with a wide mouth. It is diluted with an equal volume of water and filtered. Liquid ammonia is added drop by drop until the precipitate formed at the start is again dissolved. This is then applied with a stick or small brush. The rest is used to clean the "iron" after each heating by dipping the whole of the pointed end of it into the liquid. This flux can be used on almost any metal except aluminum, zinc or galvanized iron. For the last two named, the commercial acid is often used and for galvanized iron wire, lead and zinc are employed.

It might be mentioned here, however, as a point of interest that if the shape of the article to be soldered does not admit of the use of a liquid flux or "soldering water" then the solution of ammonia-zinc chloride can be mixed with starch till a liquid of the consistency of creamy syrup is obtained.

There is a soldering liquid or flux prepared by mixing one part of a solution of phosphoric acid with 1 to ½ parts of 80 per cent alcohol. This is sometimes called Mueller flux.

A very serviceable flux is also made from glycerine and water.

Special Jeweler's Flux

As jewelers carry out a good deal of repair work and employ small brazing and other burners for soldering as well as small furnaces, it may be useful to remark that they frequently employ a soldering fluid which is made by adding to alcohol as much chloride of zinc as it will dissolve. A good soft solder for repairing work is prepared from equal quantities of tin and lead such as is used in tea boxes. A small soft metal furnace —about what is called the 100-lb. size, having about an 8 in. pot—is a very useful thing for this class of work, although it is true that the larger number of jewelers buy their own solder. A few, however, still have their own formulae and make their own.

There is an anti-oxidizer for silver which might well be given at this point. A "wash" of a paste of whiting and water dried on the bright parts of jewelry or silverware will save it from oxidation while soldering it. It is, however, important that it does not interfere with the fluxed joint to be soldered. The flux employed in such cases is of the borax type as a rule.

Soldering Fats

We have seen that a flux is a material employed for the twofold purpose of causing the solder to flow and also to insure against oxidation of the surfaces to be joined. For this purpose fats are also employed as well as other substances as will be seen later.

Soldering fat or grease is commonly a mixture of rosin and tallow with the addition of a small quantity of sal ammoniac. It is particularly adapted to the soldering of tinned ware, because it is easily wiped off the surface after the joint is made, whereas if rosin were used alone, the scraping away might remove some of the tin and spoil the object.

To make the mixture a small cauldron furnace can be used to good advantage or else the class of equipment usually termed a soda kettle—that is, having a pot with a capacity of about 4 gallons or more if a large quantity is to be made, and especially so if a commercial product is being put out for general sale. However, whatever the quantity, the following proportions will be found correct:

Olive oil to the extent of 500 grams and 400 grams of tallow are melted together. Then there are stirred in 250 grams of rosin in powder form. The whole is then allowed to boil up once and then allowed to cool. It must, however, be watched carefully when heating up to see that it does not boil over unless, of course, a safety kettle is employed, in which case an outlet is placed near the top into which any froth or "overboiling" can run off, either into a ledge and then back into the pot or otherwise as may be desired.

After the mixture has cooled down there is added 125 grams of saturated solution of sal ammoniac, stirring the while, when cold, the preparation is ready for use.

A soldering fat for tin-plate is prepared as follows: One hundred and fifty parts of beef tallow, two hundred and fifty parts of rosin and one hundred and fifty parts of olive oil are melted together as before and stirred.

Fifty parts of powdered sal ammoniac dissolved in as little water as possible are then added slowly and stirred in. This is preferable to ordinary rosin as it can be more easily removed after soldering as already explained.

Soldering fat for aluminum is made by melting together equal parts of rosin and tallow, half the quantity of zinc chloride is then added to the mixture.

A soldering paste is made by mixing starch paste with a solution of tin chloride to produce a liquid about the consistency of syrup. This is more readily applied

(*Continued on page* 70.)

Seattle's Plan to Give Employees Such Fair Treatment that the Union Is Unnecessary to Them Has Made Community a Strikeless City

Associated Industries Stands Out for Right of Man to Make Living Without Sacrificing Independence of Opinion and Action, and, Despite Bitter Tests, Wins Out

By F. R. SINGLETON

Seattle to-day is practically a strikeless city.

Several months ago the story of how the Associated Industries of Seattle had broken the domination of radicals over the industries of that city, by a firm and successful stand for the open shop, was published broadcast throughout the United States. The employers of Seattle, banded together in the Associated Industries, declared their independence of restrictive union rule; stood for their right to hire their own men and the right of the employees to work, regardless of membership or lack of membership in a union; and established those rights by defeating a series of strikes to enforce unreasonable demands.

Back of this stand of the united employers of Seattle was the knowledge that the radical labor leaders had planned to practically take over the industries of Seattle and operate them, ostensibly in the interest of organized labor. Accordingly it was a fight for the perpetuation of industrial freedom in Seattle in which the whole United States was interested.

The story of the methods followed by the Associated Industries in defeating strikes and establishing the open shop; of the broadsides and other publicity in the daily newspapers to win public sentiment over to the "American Plan" of industry; of other phases of the struggle in which employers stood steadfast with unbroken ranks in the face of efforts to close their plants, was read with sympathetic interest by employers throughout the United States, and the Seattle plan of open shop campaign has been adopted in several notable instances since that time.

Naturally, the question has arisen in many minds: Will the Seattle plan endure? Will results be permanent and justify the struggle and expense entailed in putting it over?

A Contrast

Events of the past six months in Seattle justify answering this question in the affirmative. While many sections of this country are still troubled with destructive strikes and interference with production, Seattle to-day is free from strikes, harmony between employees and employers is on the increase, and the open shop has been established in every industry in which a strike has occurred.

When the story of Seattle's struggle to throw off the radical yoke was published, strikes in the building trades, the cleaning and dyeing and some minor industries, had been won, and the community thoroughly converted to the open shop idea, but several other strikes were still in progress, leaving the ultimate outcome in doubt. Since that time the employers have won out against the printers, one of the oldest and most powerful unions in Seattle; against the tailors and several other unions which saw fit to strike. Since August, 1919, every strike has been won completely by the employers and the open shop substituted for radical union domination.

Following a winter of comparative peace, radical union leadership attempted to force the issue again in the spring, in the hope of breaking the open shop movement. Attempts to force a new agreement with burdensome conditions on the baking industry late in April resulted in an open shop declaration by the master bakers, and a new strike which the employers won in short order. An abortive attempt was made to call out the workers in the building trades on May 1, which amounted to nothing, for the building trades workers had their fill of strike last year. The defeat of the building trades strike, which lasted from August to November, 1919, was the first important victory of the Associated Industries and the occasion of the first open shop declaration. Since that victory, things have progressed in the building trades, accompanied by increased production. The majority of the union workers had accepted open shop conditions. They did not wish to go through another period of enforced idleness and so the efforts of union leaders to bring on another strike and overthrow the open shop were fruitless.

Even the Longshoremen

The most striking example of Seattle's freedom from the old time radical domination, however, occurred on the Seattle water front. During the war, the local of the International Longshoremen's Association got a strangle hold on water front employment. Employers had practically nothing to say about the hiring of men, gangs of longshoremen and truckers being furnished by the union from the union list at the union hall. Although Seattle is a busy port, the union contained about twice as many men as there was full employment for. As a result, the work was often stretched out sufficiently to give a satisfactory measure of employment to all and the cost of handling cargo became inordinately high. Last fall, the employers succeeded in reaching a new agreement which abolished the list system, but early in May the I. L. A. served peremptory notice on employers of the re-establishment of the list system, thereby breaking the clause of their agreement requiring thirty days' notice of termination.

There is a large radical element in the Seattle local

of the I. L. A. In fact, it was regarded as one of the last strongholds of radicalism, and a test of strength had been postponed as long as practicable by the employers, but the course of the union left no alternative but to declare open shop and fight it out. That action was taken by the employers. A surprising number of men responded to advertisements of work under the open shop. Within two weeks, work reached normal on the Seattle water front, and the I. L. A. declared the strike off under orders from the international officers who had refused to sanction a strike. As a result, there is a surplus of 1,000 to 1,500 men on the water front who will eventually have to find other work, for the employers are giving practically continuous employment to those who helped them out during the strike, and who wish to remain at work. Also the conservative element of the union has broken away from the radical leadership and is applying for a charter for a new local.

And the Railroads

Also, Seattle escaped any interruption of freight service. While railway workers were striking in many sections of the country, the railway workers and switchmen refused to go out, even in sympathy with the longshoremen.

The Associated Industries has just held its second annual election. In one year of work it has changed Seattle from a radical-ridden and strike disturbed city to one of the most peaceful and productive cities, from the commercial and industrial standpoint, in the United States. The defeat of the radicals has driven some thousands of them from the city, and Seattle is no longer the stronghold of the I. W. W. and the hotbed of Soviet conspiracy.

Yes, the Seattle plan has proved a success. The Associated Industries, after an eventful year, is stronger in membership, finance and influence than ever before. It has followed consistently the declaration of a square deal for the employee. In spite of the surplus of labor that has existed for several months with the decadence of the shipyards, its members have lived up to their pledge that wages would not be reduced until living costs receded. In some instances wages have been increased without any requests being made by the employees.

Seattle union men are not discriminated against in the operation of the open shop. Instead, the employers simply refuse to deal with the unions as such. The shop committee system is being worked out to give employees the representation promised them under the open shop. The policy of the Associated Industries is to give the employees such representation and fair treatment that the union is unnecessary to them.

That is why Seattle to-day is a strikeless city.

Vertical Retorts in Small Gas Works

Results obtained with vertical retorts in small gas works were described by W. Temple Gardner in a paper before a recent meeting of the Scottish Junior Gas Association in Edinburgh.

Until about six years ago the five-ton retort was the only size in use, but it was then found that a demand existed for both smaller and larger sizes; consequently the three and seven ton retorts were designed to meet the requirements of small and large works respectively. For small works for a daily output up to about half a million cubic feet of gas, retorts of three or five ton capacity were installed; for medium sized works up to about two million per day the retorts were usually of the five-ton size; while for larger outputs the seven-ton size offered many advantages. On the smaller plants, lifts were provided for taking coal and coke in skips to the overhead bunkers, and for larger plants bucket elevators or conveyors were installed for this purpose. The amount of power required to drive the coke extractors for a plant producing one million cubic feet of gas per day did not exceed one horse power.

Steaming

On earlier plants, before steaming was in vogue, the heat left in the coke was utilized for warming the primary air for the producers. Means were now provided for making use of the heat in the coke for the production of water gas, and at the same time the temperatures were increased about the bottom lengths of the retort. The steam was superheated by being circulated through flues situated at the lower end of the retort and was admitted through a number of inlets in the side walls a short distance above the bottom castings.

The amount of steam introduced to each retort is controlled by means of a metal disc in which is drilled a hole of from ⅛ in. to ¼ in. diameter, depending upon the size of retort, and the class of coal to be carbonized. A constant pressure of 30 to 40 lb. is maintained in the main steam service, which is designed of ample size to insure each retort receiving the correct amount of steam. Incidentally, Scotch coal in the form of nuts is ideal for the production of high makes of gas by steaming, owing to the rapidity with which carbonization takes place and the depth of incandescent coke available for the decomposition of the steam.

In practice the calorific value of the combined coal gas and water gas produced by steaming is always in excess of the value calculated from the individual makes of the two gases at their respective calorific values. This is, to some extent, probably due to the removal of the last traces of hydrogen and hydrocarbons from the coke, also to the greater carrying capacity of the mixed gases for hydrocarbons which would otherwise find their way into the tar well.

Waste Heat Boilers

On the larger plants waste heat boilers were installed to recover the heat contained in the waste gases from the settings. The amount of steam which could be produced in this manner amounted to about 2 lb. per 1 lb. of coke consumed as fuel in the producers. Thus a plant having an output of one million cubic feet of coal gas per day would produce 20 tons of steam per day from the waste heat, assuming a fuel consumption of about 12½ lb. of coke per 100 lb. of coal carbonized. The problem of generating steam from the waste heat of installations of vertical retorts having an output as low as ¼ million cubic feet per day was now under investigation, and it was anticipated that in the near future it would be possible to install small boilers to generate from 400 to 500 lb. of steam per hour on plants of this capacity.

Just How Much the Policyholder Is Interested in the Financial Welfare of Public Utilities

Henry W. George, Treasurer of the Metropolitan Life Insurance Company, Estimates Investments in Street Railways Alone

The widespread publicity given to the discussion of the affairs of the railroads before the committees of Congress engaged in the endeavor to frame a law for their regulation and support which culminated in the passage of the Cummins-Esch Bill, now known as the Transportation Act, has had the effect of bringing home to the minds of our people their direct personal interest in the ownership of the properties composing our great transportation machine, declares Henry W. George, treasurer, Metropolitan Life Insurance Company, New York City, in an article in *The Public Service Journal*.

To the surprise, no doubt, of many who had always thought of the railroads as the personal property of that indefinite bogie called "Wall Street," it was demonstrated that they, the workers for wages, the people of moderate means, in their capacity as holders of life insurance policies, savings bank depositors and beneficiaries of other properties, that in the securities of the railroads the savings of over 9,000,000 depositors in mutual savings banks and the accumulated funds set aside for the protection of 33,000,000 holders of 46,000,000 life insurance policies are largely invested, and that upon the prosperity of the roads depends so greatly the safeguarding of the vast sums representing the result of thrift and foresight of fifty millions of American citizens, nearly one-half of our population, for whom these institutions, in their corporate form, act as trustees.

The Axe at the Root

To quote Dr. Laughlin, of the University of Chicago: "The axe that is laid at the root of these widely extended industries shakes the limbs of the funds stored up for future emergencies."

It has been well said by an eminent savings bank official that "the major portion of the liquid wealth of this nation consists of the small accumulations of the many rather than the larger holdings of the few." If the interest of the plain people, the wage earners, through their trustees, the saving banks and the life insurance companies, is so closely bound up with the future success or failure of the railroads, this is also true, in only a lesser degree, of the electric street and interurban railways, the lighting and power companies, the telegraph and telephone companies and the water supply companies composing the group of corporations serving the whole community and happily designated, therefore, public service companies.

In these the citizen has a double interest. He is dependent upon them for his daily transportation to and from his work, they light and heat his home and his place of business, they supply the most rapid means of inter-communication and furnish the power to turn the wheels whereby his own power of production is increased and his usefulness to the community augmented. Withal he has a financial stake in the property. The very corporation to whom he pays his nickel for a ride—sometimes of miles in length—is dependent in large part for the funds for its upkeep, for its new cars, rails, wires and power equipment on the dollars and dimes of the life insurance companies invested for the safeguarding of his policy contract.

The Largest Investors

At the end of 1918, according to figures compiled by the Association of Life Insurance Presidents, 26 life insurance companies with assets of $5,262,000,000, equal to 78 per cent of the total assets of all life insurance companies in the United States, had investments in electric railway securities—street and interurban—amounting to $116,500,000. If it may be assumed that the remaining 22 per cent of the assets of all the companies was invested in the same proportion, the amount of the policyholders' interest in this class of securities was $150,000,000.

In the report of the Bureau of the Census for the year 1917 the funded debt of the electric railways of the United States was given as $3,051,000,000 so that the life insurance companies are the owners of approximately one-twentieth of this great total, and this is probably the largest holding of any single group of investors, exceeding the savings banks, the interest of whose depositors is identical. The institution, with which the writer of this article is connected, held, on December 31, 1919, securities of this class of an investment value of $22,600,000, being the issues of 36 systems serving a total population in excess of 21,000,000 people including 61 cities of a population of 50,000 or over.

In passing, to emphasize the close relation between the public utility and the policyholder-owner, it may be said that the number of policyholders of this company in ten of the principal communities, whose electric railway securities are held for investment, is 3,800,000, or over 30 per cent of their population.

An Indispensable Service

In Greater New York, in Chicago, in Detroit, and in Kansas City one out of every four of the population is a policyholder of the company; in St. Louis and Albany, N. Y., every other person, and in Syracuse, N. Y., with a population of 160,000, approximately 100,000 people, or nearly two out of every three, men, women and children using the street railway, has a policyholder's interest in its welfare. It is certain that in no small degree the growth and prosperity of these communities has been the result of the operation of the electric railways, made possible of their citizen policyholders. In the complex life of our large cities their very existence depends upon this method of transportation. Its service is indispensable.

Suspension would bring chaos.

The second member of the public service group, in terms of amount of investment of life insurance funds, but of no less importance to the community, is the affiliated electric light and power and gas industry in whose securities, as reported by the same authority, the life insurance companies had invested in 1918, $80,500,000. No recent figures of capitalization of this group are

available, but we may be sure that the investment is a very substantial one on any basis of comparison.

Amounts of Holdings

Of the remaining components of the group the companies' investments in telegraph and telephone companies securities amounted to $27,400,000 and in issues of private water supply companies nearly $4,000,000. The total of the investments of the 26 companies in the public service group was $237,000,000, and, if the proportion holds true of the investment of the remaining companies representing 22 per cent of the assets, the aggregate at the end of 1918 was $305,000,000. The income from these securities in order to pay their obligations on their policies and the principal forms an essential part of the reserve required by law to safeguard the certain payment of the amount at risk.

The growing attractiveness of this form of investment to insurance companies is shown by a comparison of the amount of securities held by 63 companies out of 93 operating in 1904, viz., $130,988,000, with the holding of 116 companies out of 250 a decade later in 1914, which had reached $198,773,000, an increase of over 50 per cent, and this rate of increase has been maintained during the four years subsequent to the latter date, the total reaching, as above stated, over $300,000,000.

I may be permitted, perhaps, to mention, in passing, the investment of life insurance policyholders in the railroads of the country, which has reached the enormous sum of $1,600,000,000. The contribution of life insurance to the development of its institutions of public service has indeed been a notable one.

Stable During Panics

It may be asked whether, in view of the unfavorable experience of the past few years, with mounting operating costs and stationary street car fares and restricted rates for public and private lighting and telephone service, with increased wages and increased cost of rail, wire, machinery and every item entering into the cost of maintenance and operation, including money, with municipal bodies indifferent or openly antagonistic—whether from a sincere conviction or a desire to experiment along the socialistic lines of municipal ownership and operation at the expense of the taxpayer—the insurance companies are satisfied with the form of investment under discussion. I think the answer would be that they are satisfied that their judgment of the merit of their investment was fundamentally sound, and for this conclusion they have the precedent of the record of past years of industrial depression when earnings of railroad companies dependent upon manufacturing enterprises and upon crops fell off seriously, while on the other hand public service companies, furnishing gas, electric railway or light and power service, showed surprising stability even during financial panics. A writer on this subject has commented that people use almost as much gas and electricity for lighting purposes and ride on street cars almost as much in bad times as in good times. During the panic of 1907 and the dull times of 1908 many public utility companies actually showed increased earnings.

An interesting chart published by the banking house of Henry L. Doherty & Company in 1913 covering a period of thirty years from 1882 to 1911, shows that the average annual amount of securities in receivers' hands per $100 of outstanding securities was, in the case of industrials, $2.07, in the case of railroads, $1.84, and in the case of gas and electric companies but $0.37, a remarkable testimonial to the stability of the industry.

A Look Forward

The future, however, is a matter of grave concern on the part of those responsible for the investment of the great funds of which they are the trustees. Believing in the basic stability of the industry, they must still give consideration to the unfortunate tendency toward overregulation, narrow-minded supervision, the desire to hold the companies down to the strict letter of the franchise even when operation under its terms has been found to be impracticable and to work a serious injustice. We have seen recently the spectacle of a great Western city passing an ordinance to remove the local railway from the streets with the purpose of forcing it to operate for an unprofitable fare, its original franchise having expired, and, when the ralway company took the city at its word and moved its cars over into an adjoining State, the citizens walked, jitneyed or otherwise suffered inconvenience for twenty-seven days until the city authorities came to their senses and gave the company an increased fare, under which it could operate efficiently and with the prospect of a reasonable return on its investment.

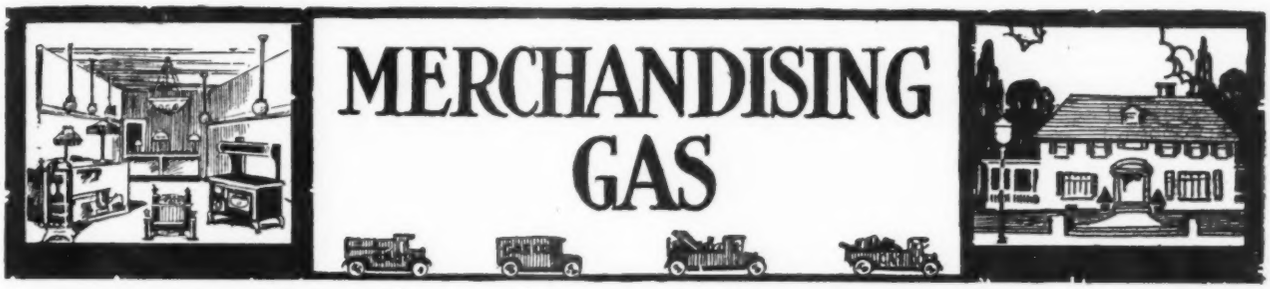
In the city of New York to-day the principal surface roads are in the hands of receivers and the civic authorities have opposed, thus far successfully, all attempts of the companies to obtain relief in the form of an increased fare or the adoption of a service-at-cost plan, and prominent officials have openly declared their adherence to the principles of municipal ownership. Chicago, Detroit, Lawrence and Salem are other examples of open opposition to the street railways on the part of the municipal authorities.

Low Fares Bring Bankruptcy

One-sixth of the total electric railway mileage in the country was, on January 1, 1920, in receivers' hands and a number of other companies are on the verge of bankruptcy because they are no longer able to meet their obligations on the fare allowed them by an out-of-date franchise which, while presumably fair to both parties when granted, has become a burden to the one and a detriment to the other.

Public service corporations have no quarrel with that degree of intelligent regulation and supervision which is intended to insure equality of service and equal rates to all alike in the best interest of the public and which takes into account the right of the corporation to live and enjoy the reasonable fruits of its enterprise. They do object, and justly so, to that short-sighted policy, which spells restriction rather than regulation, which denies to the public service corporation, merely because of its public character, the same right to have its unavoidably and abnormally increased costs of operation absorbed by the consumer, which the latter accords as a matter of course to the manufacturer and the dealer in any other product except service.

(*Continued on page 71.*)



Peterson Advocates Permanent Advertising to Children

By S. G. Addison

"I believe," said Peterson as a suggestion to an association publicity committee, "that all of our past advertising has been too temporary in character. We have tried to get immediate results and we have striven so hard in that direction that I don't think that we have secured as permanent results as we would have secured had we worked along different lines."

"What lines of advertising do you suggest?" asked the chairman.

"I've been reading a lot lately about the way the Singer Sewing Machine Company has advertised since its birth. Do you realize that their advertising has been really permanent in character and that they have practically the same sort of a selling proposition that we have? The people that they sell to are the very people that we sell to. Of course, there are some people who buy sewing machines who will not buy gas appliances because they have no gas supply, but for the most part anyone who is a prospect for a sewing machine is also a prospect for a gas range. Now I believe that we can learn a great deal from the methods they use in advertising."

"What methods of theirs do you think best adapted to gas and gas appliances?" inquired another member of the committee.

Only One Kind They Knew About

"The form that has appealed to me with the greatest force," replied Peterson, "is the use of educational cards. I can remember when I was a boy how we used to be glad to get hold of these cards and we saved them, too. The result was that when we fellows grew up there was only one kind of a sewing machine that we knew anything about and it was the same way with the girls. It is easy to see what kind we bought when we were in the market for a machine."

"Just what sort of cards," queried the chairman, "did you collect? I don't recollect any such cards."

"The cards that I remember best," said Peterson, "were series on family life and costumes of people from all parts of the world and on all the American song birds."

"It might be all right for a rich company like the Singer Sewing Machine Company to prepare and send out such cards as those," objected a conservative member of the committee, "but I can't see how such a course would benefit the gas industry. If I remember rightly those cards you mention were printed in colors and the company went to a great deal of expense to get up the sets. We haven't enough money to do any such thing and if we did I don't think it would be a wise way to use it. We shouldn't spend the association money for anything that won't get results. We are not in the business of educating or amusing children and I don't think that we have any right to use the association money for any such purpose. If your company or any other company wants to do so, however, I haven't any objections."

"Gentlemen," Peterson came back, "do you realize that it's the way that they have advertised that has made this sewing machine company such a rich company? They have had the vision to look ahead and to sell to future buyers as well as the present. Their selling methods have not been for to-day alone. They have conducted their selling as though they expected to remain in business for all time. For my part I believe that the gas industry as well as most other industries has been so keen for immediate results that we haven't prepared for the future. That is a general fault of us Americans anyhow.

"Did you ever stop to think that it's this characteristic about us that is actually hurting the gas industry? We're using up our coal supplies so rapidly that before many generations there won't be any coal left. Already we have seen the cost steadily climbing and the outlook is that it will continue to climb. If people looked ahead, they wouldn't waste coal at this rate. They would use more gas and less coal and then our coal supplies would last for many more generations than they will at the rate we are using them now. A coal range wastes something like 98 per cent of the coal burned, while gas something like 50 per cent. But it's not for fuel alone that we want to conserve our coal supplies. We learned during the war how valuable coal is. We need it for dyes, medicines, and explosives. Without coal we would be very greatly handicapped in practically every modern industry and the best way to save coal and the by-products of coal is to use more gas.

"Now I believe that the way to save the coal is to teach people more about the need of saving it and to teach them more about the benefits of gas. This can't be done by any individual company. In the first place there are very few companies large enough so that they could meet the expenses of such work and in the second place if individual companies, that is the few which could do it, should do so only a comparatively small number of the people would be reached.

"Do you know that it is just as necessary to reach people who haven't any gas supply when doing this sort of work as people who do have a gas supply? You can never tell when people from the country will come to live in the city and the easiest time to sell them gas is before they move to the city and bring along their coal range."

"This is all very interesting," interrupted the chairman, "but do you know that you haven't told us anything about the details of the plan

you want to suggest. We'd all like to remain here and listen to you, but unfortunately we'll have to adjourn in fifteen minutes so won't you tell us just what you have in mind for the gas industry?"

"I was just coming to that," answered Peterson. "My suggestion is this. Let us prepare a series of sets of educational cards that are suitable for use in the schools and are attractive enough so that both children and parents will be glad to save them."

"Why not booklets?" interposed the member who always liked to have his own ideas adopted as offered, but wanted to make changes in those of other men.

"For this reason," stated Peterson, "booklets are not flexible enough. One set of cards can be used at one time by the whole family. Each person can be looking at a separate card, but if the same information was bound in booklets only one person could use it. For educational work also the cards are more effective. One card will result in a great deal more concentration upon the subject than would one page of a booklet and the cards permit of use in many more ways than would booklets.

"Now these are some of the series that I had in mind. One interesting series would be the way people cook in different countries. You know that there are so many different degrees of civilization in the world that if we make up a series of this kind we will have a series showing cooking methods of all degrees of development. Another series on coal and the way it is used and wasted. Perhaps this would require more than one series. It certainly would be mighty interesting. We could use both of these series in our employee educational work as well as for advertising purposes. There are a good many other series that could be prepared, but I won't mention any more of them here.

"To make these cards most effective I believe that, in so far as possible, they should be made from the best photographs obtainable. Each card would contain a photograph colored by an artist in natural colors. The printing work should be of the very highest grade. I haven't gone into the matter thoroughly enough yet to be sure that it would not be necessary to lithograph them, but I think they could be printed satisfactorily. In addition to the picture which would be on one side we would have educational matter on the other side. I believe that this educational matter should be written not only by a man who understands the subject treated, in fact is an expert on it, but who has had enough experience in teaching or in writing text books so that the text may have the greatest possible educational matter. I would not have much advertising on it. Possibly no more than the name of the association. Just enough to show where the cards came from and what the business is. I would make each card as educational as possible in character."

"How many cards would you have in a set?" asked one of the committee.

"That would depend upon the subject," replied Peterson. "I would have as many as would be needed to cover the subject. In some cases it would require more and in some cases less. We would have to determine that after taking the matter up with some educator."

"But," again interrupted the conservative member, "I thought this was an advertising committee and that we were to confine ourselves to advertising. I don't call this advertising. I don't see how we could check up results or get any direct returns from this."

"Each series," explained Peterson, "would lead up to gas. The series on coal would necessarily be interwoven with gas. Advertising as I understand it is the giving of the information that a person must have before he can intelligently make up his mind how to spend his money. These series would give that information not only to adults but to children. I believe that is real salesmanship. I feel that in the past we've given too little information about our business. We've been content to ask people to take our word and buy and to me that method isn't far removed from a hard luck story. You know what they say about the difference between real selling and a hard luck story. Real salesmanship makes a man dig down deep into his pocket, but a hard luck story rarely gets more than a dime."

"It's now time to adjourn," stated the chairman. "Mr. Peterson's suggestion has been interesting and I suggest that you all give it thought between now and our meeting next month. The meeting is adjourned."

New Crop of Advertising Ideas You Can Use

By Ernest A. Dench

Those merchants who despise the ideas of others, preferring to exclusively work their own, should remember that a certain amount of guesswork and the prospect of failure is eliminated when tried and proved plans for increasing business are adopted.

By all means work in ideas of your own from time to time, but it will also pay you to adopt ideas that have been found successful by others.

Some Effective Slogans

Are you in search of an effective slogan? If so, you should find one to suit your individual requirements out of the bunch that I have come across in my travels.

The W. C. Munn Company, Houston, Texas, is more commonly known as "The Store that Grows and Keeps Growing."

Every inhabitant of Indianapolis, Ind., who finds it hard to get exactly the articles he wants is recommended to

"Always Try the Hoosier First."

Horsfall's, Hartford, Conn., advises that

"It Pays to Buy Our Kind."

The Post Company, Hartford, Conn., employs several slogans, as follows:

"A Store that Stands on Its Own Merits."
"A Store with an Untarnished Reputation."
"A Store with Good Complete Stocks."

The Adler Company, with a number of stores in the large cties, has a streamer above the window at each shop that prophesies:

"Shops All Over, More Coming."

Want a Trademark?

Another kind of slogan, or trademark, is that which capitalizes some peculiarity in the name of the proprietor.

The Bare Brothers, San Francisco, Cal., make their advertising distinctive by running a picture of

(*Continued on page 72.*)

American Gas Engineering Journal

SIXTY-FIRST YEAR

Published Weekly by AMERICAN GAS LIGHT JOURNAL, INC., 150 Nassau Street, New York, N. Y.

ELBERT P. CALLENDER, Pres. S. G. KRAKE, Vice-Pres. FREDERICK A. SOUTHWORTH, Sec'y-Treas.

EUGENE C. MILES, Editor

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents

Contents of This Issue

USE OF GAS IN SOLDERING INCLUDES VARIETY OF INDUSTRIES—BY GILBERT C. SHADWELL..... 61

SEATTLE'S PLAN TO GIVE EMPLOYEES SUCH FAIR TREATMENT THAT THE UNION IS UNNECESSARY TO THEM HAS MADE COMMUNITY A STRIKELESS CITY—BY F. R. SINGLETON..... 63

JUST HOW MUCH THE POLICYHOLDER IS INTERESTED IN THE FINANCIAL WELFARE OF PUBLIC UTILITIES 65

MERCHANDISING 67, 79

EDITORIALS 69

NEWS OF THE GAS INDUSTRY..... 73

As the Journal Views It

Who Pays the Freight?

It is becoming quite apparent that transportation costs are going still higher. And transportation constitutes a considerable part of the cost of the gas industry's coal.

Yet we do not believe any of those gas men who feel that higher transportation costs will make for better and more certain transportation begrudge the increase.

So it is with all other businesses.

We are still in high price times, and high price times as a general rule are not altogether a misfortune. They, at least, spell capital in abundance.

We do not begrudge the farmer his extra price on foodstuffs. He has had his lean years and everyone at some time in his life is entitled to the thrill of unusual profits. Nor the shoemaker, the building owner, and so on.

We must concede the morality of his profits. But we cannot do so cheerfully. We'd be willing to pay the high charges, but, though industrious, deserving, we hope, and hard working we haven't the money to pay.

Prosperous times, due to unsound regulatory systems have penalized rather than rewarded gas companies.

We are just holding on; barred from the receiving end of prosperity and condemned temporarily to the paying end. We are among that minority who are just plain "out of luck."

And the incongruity of it is that the shoemaker, the house owner, etc., willingly will concede that we too are warranted in better prices. But the regula-

tion systems that have been set up prevent him offering us aid just as they prevent us from exacting such aid.

Teaching by Contrasts

There are few people to whom the task of learning is agreeable as things are generally taught.

But even learning may be made interesting. And there is no better way of accomplishing this than teaching by contrasts.

There are fuel tasks innumerable in which but to see them is to realize the wastage that is apparently accepted as inevitable. At most a few words would suffice to make it stand out prominently.

In contrast the concentrated efficiency of gas is simple to picture.

Show them a view of lard rendering, even omitting the preparation of the fuel. Bring out the wild, uncontrolled wood fire, little of it concentrated on the task—the bulk of the flame manifestly going to waste and endangering the product. Show the occasional ember falling into the simmering kettle. Then alongside a gas-fired cauldron. Could not even a boy perceive the difference?

There is a splendid opportunity in gas company publicity to use contrasts. We are not adopting the method on the scale we should.

How Is It With Him at Home?

There are men in this world so interested even in the minor affairs of others that they will stop off in even an important task to probe deeper when the coworker across the desk leaves open momentarily, and then only a fraction of an inch, the door that leads back to his personal life.

A large number of these inordinately curious have no motive behind their probing. They are just plain curious, humanly and to an inordinate degree, interested in humanity ever eager to catch some new glimpse of human thought and human emotion that they have never glimpsed before. A few men of that type, properly harnessed mentally, prove an asset to most any gas company.

It is accepted as a fundamental of management that the employer should know how fares the employee in his home life.

But probing, questioning, inquiries, deliberately and in businesslike manner planned will never reveal it.

Formal, studied questioning or investigation will bring only formal, studied answers.

One cannot ascertain the degree of congeniality that exists among members of a family, its true degree of prosperity by simply occasionally sitting down with it at dinner an invited and expected guest.

All acting in this life, all stage settings, are not confined to the professional stage.

One most really get into the employee's confidence to learn the little, perhaps big, tragedies that are hidden behind the curtain the stranger doesn't penetrate.

And it takes a real interest in the other fellow's affairs to draw this confidence out of him.

Use of Gas in Soldering Includes Variety of Industries

(*Continued from page* 62.)

than ordinary soldering liquid. Dextrine is also used in place of the regular starch and other materials are sometimes also substituted.

Soldering Powders

Of the powder fluxes, borax is probably that most frequently used for hard soldering. It is applied to the soldering seam either dry or stirred to a paste with water; when used direct the process is somewhat difficult in some cases. The parts have to be carefully cleaned each time prior to applying the salt. The salt in contact with the soldering iron forms great bubbles and easily scales away from the surface of the parts to be dissolved. It is desirable to use calcined borax—which is that from which the water has been driven off by means of heat; it is also sometimes called anhydrous borax. The reason is that it does not become so expanded as regular borax. The metallic oxides formed on the joints are readily reduced by the acid of the borax which is used for the same purpose in the laboratory for reducing oxides to metallic "beads" as chemical students are well aware. Sometimes, in borax itself, its component parts can be used—that is to say, boric acids and sodium carbonate. The heat of the iron of flame on them combines them and instantly provides an excellent flux.

A very good flux is made from mixing equal parts of neutral zinc chloride, free from iron and powdered sal ammoniac. To use, they usually dissolve one part of the salts in 3 or 4 parts of water.

For hard-soldering aluminum bronze the use of a mixture of equal parts of cryolite and barium chloride is recommended as a flux.

For hard-soldering copper and copper alloys, a finely powdered cryolite can be employed or a mixture of 2 parts of powdered cryolite and 1 part of phosphoric acid can be used instead.

For soldering iron and cast iron the following is a very valuable flux: Equal parts of cast iron filings and calcined borax are taken. The mixture which will be of a black glassy nature is then pulverized and put on the seam to be soldered. Steel is not often soldered, but when necessary it is taken care of with a flux made as follows:

An earthenware crucible is taken and in it are put 3 parts of borax, 2 parts of colophony, 1 part of corbonate of potash, 1 part of powdered hard soap to which 3 parts of pulverized glass and 2 parts of steel filings have been added. These are then melted together over a burner, and the melted mass is run out onto cold sheet steel. When completely cooled the mass is broken into pieces and ground fine. This is applied to the surface a few minutes before uniting them.

Just How Much the Policyholder Is Interested in the Financial Welfare of Public Utilities

(*Continued from page 66.*)

CAPITAL MUST BE ATTRACTED

Life insurance companies are to-day the greatest repositories of funds for permanent investment in the country. This vast reservoir of wealth is at the service of the community for expansion and development along legitimate lines but it is certain that the flood-gates of credit will not be opened unless safe and profitable opportunities for investment are offered. The motto of the insurance trustee must be: "Safety First." If insurance capital is to be frightened away from investment in street railway securities, issued for the purpose of the legitimate improvement and development of transportation, because of a slavish adherence on the part of governing bodies to the outworn standard of "a nickel for a ride," it will betake itself elsewhere. The timidity of capital is proverbial. It cannot be forced; it must be attracted.

This brief discussion cannot be closed better than by quoting the statement of Professor Laughlin, made with prophetic foresight ten years ago: "Without doubt life insurance is safer than it ever has been. Now it remains to be seen if the people will, by its treatment of railways and corporations, consciously undermine its own investments."

France Encourages Water Gas Production

In France they are following up as expeditiously as possible the right-about-face on the part of the authorities, who now not only permit the use of water gas mixed with coal gas, but actively advise and promote its use. The customs duties on imported carbureting oils destined for use in gas works have been entirely removed. The town of Paris has put an end to the system of testing gas by its illuminating power, and has introduced a calorific standard of 528 B.t.u. per cu. ft. At the same time it is thought the changes might well have gone farther, for the amount of water gas is restricted so as to make the maximum permissible percentage of carbonic oxide 15 per cent only, and the water gas is to be carbureted with products from petroleum or shale. A mixture of half-and-half would have been the best in the interests of economy in fuel, the ton of coal then producing 20,000 cu. ft. of gas and leaving 5.8 cwt. of coke suited for household purposes, but not for water gas making. Besides, the heating value of 528 B.t.u. is thought to be unnecessarily high. Still, it is felt to be a great relief, mainly as regards economy in coal, for it is hardly to be expected that the water gas will be much cheaper than the coal gas, on account of the scarcity of petroleum and shale products. The present is an extremely bad time for putting up new plants; but it is felt that putting up new water gas plants will present smaller difficulties than extensions of retort houses.—*Gas World.*

But One Bowl on Eight Fixtures Broken in Four Years of Service

Installation of Semi-Indirect Fixtures Andrews Hotel San Luis Obispo, Cal.

By GEORGE L. HOWARD
Local Agent, Santa Marie Gas & Power Company
San Luis Obispo, Cal.

The Andrews Hotel at San Luis Obispo is the so-called Half-Way House on the now famous Coast Highway between San Francisco and Los Angeles. Its dining-room serves most of the thousands of motorists who use this highway every year—and as both motorists and trains, to either city at the ends of the highway, often leave in the early morning hours it was necessary that the lighting of the dining-room and lobby, as well, of this hostelry be something always sure—hence the genial proprietor of the Andrews Hotel, Mr. J. D. Gilliland, placed the matter of properly caring for this work in the hands of the Santa Maria Gas & Power Co., who serve this town with gas.

The attached photograph shows how successfully they took care of his needs by the use of the Welsbach Kinetic Lighting Bowl—No. 1662 fixture with the No. 1524 bowl. Each of these six fixtures were equipped with five mantle burners. The distance from the ceiling to the bottom of the bowl was 48 in. In the lobby they installed two No. 1652 fixtures with the same bowl, five mantle burners and equipped also for three electric lights in each fixture.

This installation has been in continuous use for nearly four years, and, as a commentary on the economy of the lighting bowl as regards to glassware, up to the present time they have broken but one bowl on the eight fixtures and that one was broken by outside mechanical means. This installation has been the means of much favorable comment with reference to the use of gas for lighting when the modern units are applied.

SEMI-INDIRECT LIGHTING INSTALLATION IN FAMOUS CALIFORNIA HOTEL

New Crop of Advertising Ideas You Can Use

(*Continued from page* 68.)

a bear as their trademark.

Hartman's Indianapolis, Ind., on the other hand, insert their newspaper announcements in heart form.

That will be enough slogans to go on with, so we will pass to some successful merchandising plans.

A Customer's Column

The Daniels and Fisher Company, Denver, Colo., insert their newspaper advertising in the form of a "Customer's Column," which consists of intimate facts about the current merchandise offered at the store, with gossipy paragraphs about more or less well-known local customers sandwiched in. The plan is particularly recommended for use in country towns where everybody knows everyone else.

Ads in Tear Off Diary Form

The newspaper advertisements of Katten's, Hartford, Conn., are something after the order of a tear off diary. A fresh "Daily Reminder," with the date in calendar form appears as regularly as clockwork. People watch these announcements to see what is coming next.

Making Use of Newspaper Proofs

Lulle, Brooklyn, N. Y., has found an excellent plan of how to utilize the additional proof of his advertisements that are supplied by the local weekly. He posts these announcements, with the name of the newspaper in which they appear printed above, on his windows, so that anyone who has not seen them in the newspaper is enabled to take advantage of his current offers. Martin's, Brooklyn, N. Y., go one better by providing a gilt frame for the insertion of the proofs of its current newspaper publicity.

Follow the Red Line

J. Lazarus Company, New York City, have a red line painted running the full length of its windows, with a red "Enter" sign over the doorway. The lettering in white on the Red Line is an invitation to "Follow the Red Line to Save Money."

Strong, Brooklyn, N. Y., has a glass case just by the entrance of his store, but it is not like ordinary glass cases which contain side lines carried in stock that are not deemed worthy of a special window display. The particular object of this glass case is to dispose of special lines that necessitate the pulling out of a window each time one is offered. So the public is advised to "Watch that Case for Specials." And they must do it, for the case in question has been on the job for several months.

The Fairy Lady

Lewis & Son, Denver, Colo., humor the kiddies by engaging "The Fairy Lady" to visit the store every Saturday morning. She entertains the children, both girls and boys being invited, to come and listen to the beautiful, wholesome stories that she tells. It pleases the mother as well, for there is nothing more annoying than to have children running in and out of the house when mother wants to do the Saturday cleaning.

Nat Levy, New Jersey, recently employed some business compelling window cards, examples of which follow:

"A square deal and then some. It's the then some that makes our customers boost."

"Every visitor becomes a customer. No wonder, our values speak for themselves."

"There's more in business than dollars or profits. We would rather make a friend than Two sales."

"A particular store for particular people. We spare no pains in getting things just right."

It is just such new ideas and plans as the foregoing that inject new life into a business that is slowly running to seed for the lack of them.

Instructing the Public in Gas Meter Reading

The little gas meter, working away in the basement, is more or less of a mystery to the gas consuming public—or at least a very large proportion of it. Patrons "kick" at the size of their gas bills, but admit that they have no proof that they have been charged for an excessive amount. It was, therefore, with an idea of bringing about a closer co-operation between producer and consumer that the Pacific Gas & Electric Company recently started on a campaign of gas education.

They installed in their window one of their gas meters, painted a brilliant red, and fastened above it a card, "Have you one of these little fairies in your home? If so, don't blame the gas man for a large bill, but consult your little red monitor. If you don't know exactly how to read your meter, come in and let us demonstrate and explain the process to you."

In the office they had a duplicate meter and to all who inquired they gave full instructions. They also had printed little pamphlets of instruction which they gave to all who asked for them, or mailed upon receipt of request. They backed up their educational campaign with a good news ad:

How to Read Your Gas Meter

If you will look at your gas meter, you will notice three dials. That on the left hand, marked 100 thousand, registers 10,000 cu. ft. of gas from one figure to the next. The middle dial, marked 10 thousand, registers 1,000 cu. ft. from one figure to the next. The dial on the right, marked 1 thousand, registers 100 cu. ft. from figure to figure.

In reading, note the direction in which the pointers move, as indicated by the arrows, and set down the reading from *Left* to *Right*, using the figure that the hand has last passed, unless the hand just covers the figure.

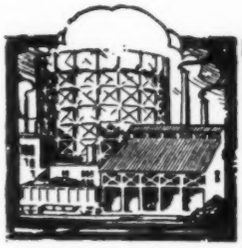
Suppose, for instance, that the pointer on the left hand dial rests nearest the figure 5, that on the middle dial nearest 3, and that on the right hand dial nearest 2; the total reading then is 32,200 cu. ft. And that represents the total consumption of gas registered by that meter. Now, subtract from the total amount registered at last month's reading and you have your consumption of gas for the month. Apply the rate per 1,000 cu. ft. and you know the amount of your gas bill.

Try Reading Your Own Meter

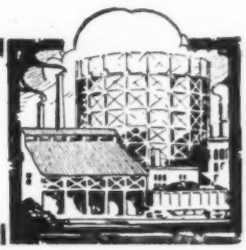
You will find it is very easy to take periodic readings, and keep a check on your gas consumption.

Pacific Gas & Electric Co.

Republic Railway & Light Company, Youngstown, Ohio, reports gross earnings for May at $623,506, increase of $131,730 over last year. Net, $126,390; increase of $7,788.



NEWS OF THE GAS INDUSTRY



Important Papers on Use of Fuel Gas to Be Read at A. G. A. Convention This Fall

The Industrial Fuel Sales Committee of the American Gas Association met in Chicago June 17 and 18. Charles A. Munroe, vice-president of the Public Service Company, is chairman of the section of the American Gas Association by which the committee named is created and H. H. Clark of the Public Service Company is chairman of the committee. The latter's membership includes some of the largest gas companies and organizations in the country. There was a large attendance at the meeting to which the United States Bureau of Standards sent a representative. The latter bureau is conducting a series of tests to determine the efficiency of gas burners.

Twenty papers, each one dealing with fuel gas in a specific industry, were presented to the committee for consideration. All refer to the use of gas in smaller industries. In the case of each customer the load will not be large, but a number of such customers would establish a diversified demand of considerable importance, especially to gas companies operating solely in the smaller cities and towns. A large part of the committee's work and the purpose of the papers is to educate the smaller companies and stimulate them to develop an industrial gas business. The line of new prospective customers can be cared for easily by any gas company.

The papers were carefully analyzed by the committee and emerged from the process somewhat revised and, it is believed, valuable additions to the literature of industrial gas. They will be read at the annual meeting of the American Gas Association in New York this fall and will be printed in pamphlet form and circulated extensively. Small industries as before stated are in the main referred to as consumers, but the new employments of gas proposed are so numerous and in cases so novel that an animated discussion is expected at the annual meeting together with a large demand for the pamphlets.

The work of the Industrial Fuel Sales Committee is part of the propaganda being carried on by the American Gas Association. It includes the wide dissemination of knowledge of the advantages and economies of gas as fuel in manufacturing. Numerous articles on the subject have been printed in technical journals and in publications of national circulation. Civic bodies have been interested and the subject has been presented at many trades meetings. That gas fuel is a good thing is more generally known.

Boston Consolidated Allowed $1.30 Gas Rate

Boston gas consumers face an increase in the price of that commodity from $1.10 per 1,000 ft. to at least $1.30. Corporation Counsel Arthur D. Hill assented to a 20 cents increase at the continued hearing on the matter before the Public Service Commission at the State House. It is possible also that a still higher rate will be permitted in the fall.

The company petitioned for an increase from the prevailing price of $1.10 to $1.60, and contends that $1.72 is really needed to cover costs. Mr. Hill stated that $1.30 would still allow the company to pay the present 7 per cent dividends to stockholders.

The city corporation counsel and Vice-President Edgar N. Wrightington of the Boston Consolidated Gas Company will have a conference in an endeavor to reach a compromise. If they reach an agreement it is expected that it will be approved by the commission.

Binghamton Light, Heat & Power Company, Binghamton, N. Y., reports gross earnings for May $53,463, increase $16,148. Net, $10,761; increase of $2,451, compared with May last year.

Public Service Company of Newark Files $1.55 Rate for Gas

The Public Service Gas Company, Newark, N. J., has filed a new gas rate of $1.55 per 1,000 cu. ft. with the Board of Public Utility Commissioners. The company asks that the proposed rate go into effect immediately.

President Thomas N. McCarter of the company, in discussing the new schedule, said: "Every cent of increase in the new rate represents solely the added cost of manufacturing and distributing gas over the cost figures that prevailed when the present rate of $1.15 was filed, June 25 of last year."

L. D. Howard Gilmour, counsel for the company, appearing before the utility commission, asked that an early date be set for a public hearing on the company's application. Testimony of the company, he said, would not take more than an hour.

The new schedule of rates proposed by the company, as compared with the existing rates per 1,000 cu. ft., is given below:

		New	Old
First	30,000	$1.55	$1.15 per M
Next	30,000	1.50	1.10 per M
Next	50,000	1.45	1.05 per M
Next	50,000	1.40	1.00 per M
Next	50,000	1.35	.95 per M
Next	100,000	1.30	.90 per M
Next	500,000	1.25	.85 per M
Over	800,000	1.20	.80 per M

The company's request for an increased price for gas followed the commission's refusal to allow a differential rate based on the price of oil.

"The oil differential," said Mr. McCarter, "would have taken care of the increased oil costs only. But while the greatly enhanced price of oil is responsible for the bulk of the increase, there have been abnormal advances also in the price of coal used in gas making, and the labor in the plants is receiving higher wages than when the $1.15 rate was filed.

"A year ago, before the rate was

fixed at $1.15 per 1,000 cu. ft., the company was paying only 3.05 cents a gallon for gas oil under a long term contract that had been entered into before the war.

"With the expiration of that favorable contract on Aug. 1, 1919, the company was forced to pay an average price of 5.18 cents per gallon for oil under a new contract for a term of one year. This contract expires Aug. 1 next, and the best possible terms the company could make for a new contract will necessitate the paying of an average price of 13.45 cents a gallon for oil from Aug. 1, 1920, to Aug. 1, 1921.

"A contract at these terms and for this period has already been entered into and because of the vast quantity of oil the company must use—its requirements being in excess of 47,000,000 gallons a year—I suppose we may consider ourselves fortunate to get enough oil even at the price we must pay."

In a statement filed with the new rate schedule, the company makes this announcement:

"Operating expenses for the year ending July 31, 1921, will show a further increase of forty-two cents per 1,000 cu. ft. over the operating expenses upon which the rate of $1.15 per 1,000 cu. ft. was fixed by the board as just and reasonable."

Correction

There appeared in the June 5 issue an item to the effect that the Government helium plant at Petrolia, Texas, had been removed to the Langley Field, Hampton, Va. This was a misstatement of facts. What was transported to Langley Field was the apparatus of an experimental helium plant formerly at North Fort Worth, Texas, but which, having served its purpose there, was dismantled early in 1919, preliminary to the building of a large production plant at the same location. This is now rapidly nearing completion. The older apparatus is to be used at Langley Field for further experimentation, especially for repurification of gas from admixed air after use in service.

THE SALEM GAS LIGHT COMPANY, Salem, Mass., has been granted authority by the Public Utilities Commission to increase its rate to $1.80 per 1,000 cu. ft.

To Relieve Shortage Governor of Indiana Advocates Purchase of Coal Mine

With the beginning at Indianapolis, Ind., of a special session of the Indiana General Assembly, Governor James P. Goodrich advocated, among other things, the purchase of a coal mine by the State of Indiana, to be operated for the benefit of the State institutions. He also advocated a law whereby the Public Service Commission of Indiana would be given power to compel railroads to provide enough coal cars for mines engaged in supplying State institutions with coal. Shortages of coal supplies at the various State institutions, apparent shortages with resultant suffering next winter, and high prices were the reasons behind the governor's advocacy of these two proposals, he said.

J. Dorsey Forrest, general manager of the Citizens Gas Company of Indianapolis, after the governor had promulgated his proposals, called attention to the experience of the gas company in owning its own coal supply in an Eastern State and refuted the governor's statement to the effect that he was certain he could mine coal in a State-owned mine for the benefit of the institutions at costs not much above $2 a ton for the same grades of coal that now are bringing as high as $7 on the Indiana market. Mr. Forrest, in an open letter to the governor produced figures at marked variance with those shown by the governor. Mr. Forrest sent the letter to a member of the Marion County delegation in the House of Representatives.

The governor had declared that he could produce coal and deliver it on board cars for not more than $2 a ton, and gave figures to show that the labor costs of coal production ran between $1.40 and $1.70 a ton in most cases. Mr. Forest gave an itemized statement of production costs per ton at the West Virginia mine of the Citizens Gas Company and showed that for May they were $3.555 and for June $3.257. Mr. Forest also said that he believed conditions for mining were more favorable in West Virginia than in Indiana.

His letter was, in part, as follows:

"I have read with a good deal of interest the proposal of the governor to purchase a coal mine for operation by the State to supply State institutions with fuel, and have noted particularly the figures which he has given out and his general statements on the subject of cost of mining at the present time. The promise is given that coal can be obtained by the State in this manner at a cost of $2 per ton at the mines.

"For some time I have been in charge of the operation of a coal mine in West Virginia, under conditions which have made the question of cost of production of prime importance, because we do not sell any coal on the general market and are, therefore, not influenced by the present unusual prices which are being obtained for free coal.

"The statement which has been given out regarding the mining labor costs for Indiana indicates that such costs in this State are not greatly different from those in the State of West Virginia, and I have no ground for criticising the figures which have been given. However, it is my opinion that the other costs of mining, which are not given as facts, but rather as estimates, are very far from correct, and that in the actual operation of a coal mine in this State it would be found that coal would cost the State institutions a great deal more than the figure which has been made in the estimates. The following is a statement of the costs of mining at the mine with which I am connected during the months of May and June of this year:

	May	June
Mining labor	$1.665	$1.519
Maintenance labor	.295	.290
Operating supplies	.355	.366
Maintenance supplies	.210	.372
Taxes	.068	.059
Insurance (fire and liability)	.052	.047
Depreciation and depletion	.407	.361
General expense	.303	.243
Totals	$3.355	$3.257

"I have given nothing in these figures to cover capital charges. This particular mine represents an investment running close to $500,000.

"Of course, like all other mines, this has been greatly limited in its operation by reason of car shortage. During the month of May it produced 9,559 tons and during the month of June 10,978 tons. This represents about one-third of full operations. It has been estimated that a mine working at one-third normal capacity produces coal at a cost of approximately 60 per cent over normal. The costs of mining labor, maintenance labor, operating

supplies and maintenance supplies will fluctuate very largely in proportion to the tonnage produced, although there will be a slight reduction per ton in the cost with the increase in the tonnage.

"My firm conviction, both from practical personal experience and from an animated knowledge of the operation of a good many other mines, is that it would be exceedingly unwise from a pecuniary point of view of practical production, for the State of Indiana to purchase a coal mine, and I sincerely hope the Legislature will not authorize such a step.

"My criticism of this proposal has no bearing whatever on the proposal to purchase coal cars for the use of the State, which is a matter to be judged on an entirely different basis."

Price of Gas to Be Increased August 1

The Scranton Gas & Water Company, Scranton, Pa., has notified its patrons that advanced rates will become effective Aug. 1. Explaining that the increase has been made necessary by the increased costs of gas oil, labor and increased expenses due to mine cave damage to its system.

The following table shows the old rates and the rates to go into effect Aug. 1:

	Per 1,000 cu. ft. New	Old
For a monthly consumption of:		
15,000 to 25,000 cu. ft.	$1.50	$1.15
25,000 to 100,000 cu. ft.	1.40	1.05
100,000 to 300,000 cu. ft.	1.20	.90
300,000 cu. ft. and over.	1.00	.80

Also a minimum charge of 50 cents per month will be made for each meter installed.

Gas Company Votes to Issue More Stock

The directors of the Worcester Gas Light Company, Worcester, Mass., at a recent meeting of the board voted to authorize President Louis H. Buckley to petition the public utility department for the right to issue 3,500 additional shares of preferred stock authorized by the stockholders in 1918, the purpose being to take up outstanding floating indebtedness.

Fuel Economy Division of the Exposition of Chemical Industries of Special Interest to Gas Industry

For the Sixth National Exposition of Chemical Industries which will be held in Grand Central Palace, Sept. 20 to Sept. 25, inclusive, there is being arranged the biggest symposia on chemical engineering ever carried out in this country. Up to the present four symposiums have been scheduled. One will be on fuel economy, one on materials handling, one under the general head of chemical engineering, and another on industrial management.

Many important topics of interest to the gas industry will be treated upon when the fuel economy division holds its session. Among the papers to be read will be one on "Fluid Heat Transmission," by A. B. McKechnie, Parks-Cramer Company; one on "Refractory Cement, Life Insurance for a Furnace," by F. W. Reisman, Quigley Furnace Specialties Company; another on "Producer Gas and the Modern Mechanical Producer," by W. B. Chapman, Chapman Engineering Company; and one on "Preventing Conduction and Radiation Heat Waste," by S. L. Barnes, Armstrong Cork Company. W. O. Rankin, of Quigley Furnace Specialties Company, will talk on "Powdered Coal," and there will also be an address by Conrad Dressler, of the American Dressler Tunnel Kilns.

The chemical engineering program consists of A. Hough and Wallace Savage on "Construction of Horizontal Stills"; Thomas W. Pritchard, on "New Method of Destructive Distillation"; W. D. Richardson, on "Corrosion and Galvanic Action in the Industries," and others to be selected.

The speakers for the materials handling program have not yet been announced, but F. G. Anderson, of the Chain Belt Transmission, will be among those who will occupy the rostrum for a time. Moving pictures have played a big part in previous chemical expositions, but this year there will be a series of films which will far surpass anything before attempted. The majority of these are absolutely new, in fact some are still in the process of making.

In the U. S. Chemical Industries series are included "The Story of Sulphuric Acid," General Chemical Company; "A New Chemical Industry-Leather from the Sea-Fish Leather," Ocean Leather Company (Ford Educational Film Company); "Perfumes for the World," Antoine Chiris Company; "Modern Coke and Gas Manufacture," The Koppers Company; "The Story of Petroleum Oil," Standard Oil Company, New Jersey; "The Asphalt Paving Industry," Barber Asphalt Paving Company, and "Colioidal Movement in Asphalt," Barber Asphalt Company.

In the Plant Operations series there are two films already scheduled and others will also be shown. The ones listed are "Continuous Motion, Conveying, Stacking, Elevating, etc.," Brown Portable Conveying Machinery Company, and "Foamite Firefoam Extinguishing Apparatus at Work," Foamite Firefoam Company.

With 370 applications for exhibits already booked, the Sixth National Exposition of Chemical Industries will be on a record breaking scale. The exposition has become an institution in the United States and each year finds new displays that further reveal the ingenuity and cleverness of this country's chemists.

There will be a wide range of exhibits this year. The fact that the exposition has been divided into sections has caused greater interest than ever and the materials handling division and the fuel economy division, both of which will be new this year, have attracted many large concerns.

From huge vacuum and drying plants, weighing tons, to the most minute apparatus used in laboratory experiments the exposition will be complete. Exhibitors will show how the pharmaceuticals and medicinals essential to the industry are now made in America. The progress in the manufacture of porcelain, pottery and glass so necessary in chemical experiments, and until the war largely imported, will be revealed.

The Materials Handling Section will embrace exhibits of machinery and equipment, and will be interesting to manufacturers because every industry must at some stage of its business convey its products from the place of its manufacture to the place of its consumption. Raw material must also be handled and with the scarcity of man power, machinery promises to be a big factor in the future. It is expected that this sec-

tion will enable the manufacturer to see the economy as well as the efficiency of machinery in the matter of conveying material.

The Fuel Economy Section is important in view of the high price and the increasing cost of coal. In the section will be shown machinery and apparatus, furnaces, producers, stokers and all devices that tend for the economic utilization and the more efficient combustion of fuel. Manufacturers are expected to learn a lot from the many improvements in this respect within the past few years.

With the majority of the exhibits tending along the lines of progress and economy it is evident that a visit to the exposition will benefit manufacturers and business men. Impressions not gained elsewhere, and valuable in the future will be stowed away, for a glance into the inside of chemistry has been known to bring improved conditions in many industries and manufacturing plants.

Norwich Company Announces New Rate Schedule

New rates to be charged users of gas, which will go into effect on the first of August have just been announced by the Norwich (Conn.) Gas and Electric Department, which is advertising the new rates, according to the legal requirement that they must be advertised for a month before they are put into effect.

The new rates will reach the smaller users of gas, for it means just as much trouble to look after the man who uses only a few thousand cubic feet per month as the one who uses many thousands.

The gas and electric commissioners state that they are obliged to make the raise in rate because of the excessive increase of the cost of all material entering into the manufacture of gas.

Previously there have been four rates charged according to amount of gas used. The new schedule of prices provides for six different rates.

On the old rate the minimum charge or meter charge, was 50 cents per month. This is now raised to $1. The former rate was $1.50 per 1,000 cu. ft. for all up to 30,000 ft., $1.35 per 1,000 ft. for all using from 30,000 to 150,000 ft., and $1.15 per 1,000 cu. ft. for all over 150,000 ft.

The new rates announced are:

First 100 cu. ft. month $1.

Next 400 cu. ft. per month @ $2 per 1,000 cu. ft.

Next 1,500 cu. ft. per month @ $1.80 per 1,000 cu. ft.

Next 18,000 cu. ft. per month @ $1.50 per 1,000 cu. ft.

Next 55,000 cu. ft. per month @ $1.35 per 1,000 cu. ft.

All over 75,000 cu. ft. per month @ $1.15 per 1,000 cu. ft.

Minimum charge $1 per month or fraction thereof.

Gas Report Filed

A substantial increase in the receipts of the Gas & Electric Department of the City of Holyoke Gas & Electric Department, Holyoke, Mass., is reported by City Auditor Daniel W. Kenney in his audit for the period from Dec. 1, 1919 to May 31, 1920.

The revenue receipts of the Gas & Electric Department for that period were $503,217.35, an increase as compared with the same period in 1919 of $64,730.14. The actual increase is about $57,610.14, as $7,120 received in December should properly be credited to the 1919 receipts, being overdue bills paid from the 1920 appropriation for lighting and street oil.

Charlestown Gas Raised to $1.35

Consumers of gas in Charlestown, Mass., will have to pay $1.35 per 1,000 cu. ft. of gas on all gas consumed from June 20 until further notice, according to an order of the Department of Public Utilities. This is an increase of thirty cents over the price established Oct. 20. The Charlestown Gas & Electric Company petitioned the Department of Public Utilities for authority to charge $1.40 per 1,000 ft. for gas. The company stated that the great increase in the price of coal, the difficulty in getting it and the poor quality of the fuel delivered made it necessary to charge a higher price for gas.

Flow of Gas Struck

A strong flow of gas was encountered at 700 ft. in the deep test well on the Rogers lease three and one-half miles west of Mexia, Tex. As soon as some needed repairs are made on the fifteen-inch pipe work will be resumed.

A. G. A. Launching Nation-wide Campaign to Educate Public

In headquarters of the A. G. A. recently opened at the Pennsylvania Hotel, New York City, is centered a campaign now being carried on throughout the country for the education of the public in the necessity of higher gas rates. An "emergency committee" appointed at a meeting of the American Gas Association May 26 has outlined a comprehensive plan of propaganda and is already employing the usual agencies of the publicist in promoting its ends.

As has been made known to the New York public in recent suits at law and in equity, and applications heard by the Public Service Commission, the gas companies claim that because of increased prices of gas oil, labor, etc., present prices for illuminating gas are inadequate. These contentions are being vigorously contested by Corporation Counsel John P. O'Brien, who in the course of several struggles with gas companies in the past has acquired a thorough knowledge of the business.

The operation of the "emergency committee" is outside of the court actions. The American Gas Association, which comprises 75 per cent of the 1,040 gas companies of the country, is acting on the belief that if it can convince the consuming public of the justice of its claims it will have a better chance of success in getting more for its product.

The quarters opened at the Pennsylvania, Exhibit Room 4, on the mezzanine floor, are in charge of Snowden H. Sommers, a well known New York newspaper man. His work is to produce the sort of copy, and ideas for copy boosting the higher rates idea, newspapers would be likely to use.

Every gas company official and employee represented by membership in the association is urged in literature sent out by the "emergency committee" to help educate the consumer. In line with that part of the campaign a booklet has been issued telling gas company folks how to "get next" to their newspapers. A keynote paragraph of this reads:

"Establish a point of contact with the editors of your papers; and then tell the truth. If the newspapers of this country had been taken into your confidence and in turn could have told the truth to your public the gas industry of the United States

would not be facing the crisis it now faces. Your public would now have confidence in you and your company, and when you tell your local authorities that you must have an increased gas rate and accurately, clearly and truthfully set forth the reasons, your consumers would believe you and would be willing to pay."

How to establish a "point of contact" is set forth with close attention to detail. The booklet tells what news is, how to meet the editor, what to say to him, devotes a little attention to the psychology of the reporter, and in general constitutes a shorter course in journalism. The association has three definite aims in its campaign of publicity, namely:

"Abolishment of the candlepower standard wherever in force.

"Lowering the heating value standards to a point consistent with good service and the ability to secure essential gas making material.

"Increases in gas rates to a point where the return on the investment will provide for expansion of the business and the establishment of a sound basis of credit."

Railroad Commission Permits Sale of Valley Gas Plant

Authority to sell the properties of the Imeprial Valley Gas Company, El Centro, Cal., now in the hands of a receiver, to the Interstate Gas Company has been granted by the Railroad Commission. The Interstate Gas Company was authorized to issue $150,000 of its common stock in payment for the properties. In its order the commission, referring to the fact that it recently refused the Imperial company permission to retire from the utility field, says:

"The authority herein granted shall not be interpreted as permitting the discontinuance of any service now rendered by Imperial Valley Gas Company, or by C. E. Paris, receiver, nor shall it be interpreted as permitting Interstate Gas Company to purchase only part of the properties now owned by Imperial Valley Gas Company."

The commission also declares that it should be understood that the commission cannot adjudicate the rights of the various classes of creditors.

"No doubt the court under whose direction the properties are being sold," says the commission, "will determine how the proceeds are to be distributed."

Organization and Object of the Federated American Engineering Societies

The object of the Federated American Engineering Societies as declared in its constitution:

"Shall be to further the public welfare wherever technical knowledge and engineering experience are involved and to consider and act upon matters of common concern to the engineering and allied technical professions."

Notwithstanding this, the statement is repeatedly made that the organization does not deal with the interests of the individual engineer and of the allied technologists. The purpose of the organization is that of service first to the nation, State and community, and second, to the profession which obviously must include the interests of the individual. While it is true that it does not deal with the interests of the engineer and technologist as does a labor union for its member, nevertheless its work will do more ultimately to advance the interests of the individual than a labor union could possibly do, because the advancement of the profession through a greater recognition by the public of the engineer and allied technologist, and the greatly increased solidarity and higher standards of these professions must unquestionably work for their ultimate good.

The Joint Conference Committee, among others, has referred to the Federated American Engineering Societies as a "new" organization. This is not strictly correct. While the name is new, the organization will be a successor to the existing Engineering Council, whose work will be amplified and carried on on a much more extended plan as to scope and membership.

There has been considerable comment on the name of the new organization. Probably no detail caused the Committee on Constitution and By-laws of the Organizing Conference more serious thought than the question of a suitable name. The purpose was to secure a short title that could readily be used, and many suggested names were rejected for good and sufficient reasons. The committee decided that the name of the organization should be indicative of its character, based on the fundamental resolution of the Organizing Conference, that it should consist of societies and not of individual members. The words, "Association," "Confederation," "Federation," and others were suggested and considered and all were rejected and finally as a compromise the word "Federated" was unanimously agreed to. In view of the fact that other countries are looking with interest on this movement with the probability that there will be similar organizations formed in those countries, it was felt desirable that some distinctive name should be given the organization in this country, and so the word "American" was inserted. Objection to this was made on the ground that this country is the United States of America," but the answer was that the soldiers of this country fought in Europe as "the American Expeditionary Forces" and have been internationally so recognized. It was thought undesirable to use so long a name as Engineering and Allied Technical Societies, especially in view of the fact that engineering as defined in the preamble of the constitution is an all inclusive word, and it was, therefore, decided to use only the word "Engineering" in the title. Hence the name "the Federated American Engineering Societies."

It is probable, however, that when the organization begins to function it will be referred to as the Federated American Engineering Societies, but will be called the American Engineering Council which is the executive body of the organization.

Basis of Representation

There seems to be difficulty in understanding what the basis of representation should be where a State organization exists and where there are also strong local organizations and affiliations. The constitution provides that a State council or organization, representative of the engineers and allied technologists in the State, can be represented on the American Engineering Council on the basis of all the engineers and allied technologists in the State. If, however, there exists a strong local organization or affiliation which elects to have its own representative or representatives on the council then the State council or organization is entitled to representation on the basis of all the engineers and allied technologists in the State, less the engineers and technologists that are to be represented through their local organization or affiliation. This will not prevent the local organization or affiliation from participating in the work of the State council or organ-

ization in the consideration of matters affecting the State only.

The Federated American Engineering Societies will function through the American Engineering Council which will meet either annually, or biennially, as it will determine. This American Engineering Council will consist of representatives from the member-societies on the basis of one representative for from 100 to 1,000 members and an additional representative for each additional 1,000 members or major fraction thereof. From this body of representatives will be formed an executive board of thirty, consisting of six officers and twenty-four other members selected in part from the national societies and the remainder from the local, State or regional organizations or affiliations. The plan reported by the committee on constitution and by-laws provided that the representation on the executive board should be based on the ratio of the total number of members in the national societies to the total number of numbers in the local, State and regional organizations or affiliations. The organizing conference, however, changed this to the ratio of the number of representatives from the national societies to the number of representatives from the local, State and regional organizatons or affiliations, on the American Engineering Council. This executive board will meet monthly or as often as may be found to be necessary to properly transact the business of the American Engineering Council. There will be an executive officer who will also be the secretary of these bodies and who will be entrusted with carrying out their instructions.

The joint conference committee is unqualifiedly of the opinion that an opportunity has been created for bringing about a solidarity of the engineering and allied technical professions that has never heretofore been available and that the success of the movement will depend on the wholehearted support of each American engineer and of each technologist, who, if determined that this movement shall succeed, will obviously not bother with the details or the form of organization, in his effort to secure the end desired.

LAWRENCE GAS COMPANY, Lawrence, Mass., has petitioned for authority to increase the price of gas, to be fixed by the Department of Public Utilities.

Fifty Massachusetts Gas Co.'s Have Increased Their Rates

More than fifty gas companies within the State of Massachusetts have raised the price of gas this year on account of the rising costs and scarcity of coal and labor. In some cases companies have increased the price of their product twice and two companies are now charging $3 per 1,000 ft.

Consent of the public authorities to increase the rate is not necessary, but several times rates fixed by gas companies have been reduced upon order of the Public Utilities Commission. The following companies have increased their prices this year:

Company	Increased from
Arlington	$1.25 to $1.70
Northampton	1.25 to 1.80
Salem	1.40 to 1.80
Marlboro-Hudson	1.25 to 1.80
Lowell	1.20 to 1.30
Worcester	1.15 to 1.30
Old Colony	1.90 to 2.00
Taunton	1.30 to 1.40
Brockton	1.45 to 2.10
Amherst	1.90 to 2.50
Malden and Melrose	1.20 to 1.50
Worcester	1.30 to 1.50
Wakefield	1.60 to 1.80
Suburban	1.20 to 1.50
Lowell	1.30 to 1.40
Quincy	... to 1.35
Boston Consolidated	1.00 to 1.10
Plymouth	... to 2.75
Attleboro	1.30 to 1.40
Brockton	1.80 to 2.69
Beverly	1.40 to 1.70
Webster and S'thbridge	1.40 to 1.65
Easthampton	1.90 to 2.50
Worcester County	2.50 to 3.00
Williamstown	1.25 to 1.65
Spencer	2.50 to 3.00
Lexington	1.65 to 2.00
Clinton	1.50 to 1.90
Adams	1.25 to 1.65
Pittsfield	1.40 to 1.80
Lenox and Lee	1.00 to 2.00
Nantucket	2.30 to 2.70
Cambridge	1.10 to 1.60
North Attleboro	1.35 to 1.65
Lynn	1.15 to 1.35
Newburyport	1.80 to 2.73
Springfield	1.15 to 1.45
South Hadley	1.25 to 1.55
East Longmeadow	1.30 to 1.60

SANDUSKY GAS & ELECTRIC COMPANY, Sandusky, Ohio, reports gross for May $56,550, a gain of $14,157. Net, $4,854; decrease of $4,126, compared with last year.

Must Supply 4,000,000 Ft. of Gas Daily to Carbon Black Company

Holding that it was the duty of E. N. Gillespie and the Guffey & Gillespie Oil Company to reasonably develop the property in order to produce sufficient gas to furnish the Peerless Carbon Black Company 4,000,000 ft. per day for the manufacture of carbon black, provided that amount could be produced from the property, Judge H. D. Rummell, of the Kanawha County Circuit Court, W. Va., has handed down his findings in the case of the Peerless Carbon Black Company against E. N. Gillespie and others, a case in which the plaintiffs sued for possession of property which is held to be worth one million dollars, located in Big Sandy district, Kanawha County.

The further findings of the court are to this effect, that it was the further duty of the defendants to deliver to the plaintiffs all gas produced from the property, including casinghead gas until the above amount had been delivered; and that it was a violation of such duty for the company to use gas in its operations, or to permit gas to be wasted. Also, that on or prior to March 29, 1920, the defendant company was in default in the performance of said duties under the said covenants of said contract, which default had continued for more than 20 days prior to said date. It was also found that the plaintiff on March 29, 1920, declared the sub-lease to said Gillespie to be forfeited, and thereupon re-entered and took possession of the property in controversy and has since remained in continuous possession thereof. This re-entry and possession were rightful, and the forfeiture was actually incurred by the defendants for breach of the covenants and duties.

Utica Gas & Electric Bonds

Harris, Forbes & Co. are offering a new issue of $1,700,000 of Utica Gas & Electric Company's 7½ per cent five year general mortgage convertible gold bonds, due March 1, 1925, at 98 and interest and yielding 8 per cent. The proceeds from their sales are to be used for reimbursing the company for expenditures for additions and extensions to its plants.

Gas Appliances a Feature of Los Angeles Industrial Week

By William Bliss Stoddard

A year ago during the big industrial parade in Los Angeles, Cal., the hundreds of participants marched down the streets singing the official industrial song:

Keep the smokestacks smoking, every stoker stoking,
Now the boys are coming home, work can't be slack.
Start new wheels ahumming, send new drummers drumming—
Turn your pockets inside out, it will all come back.

How that promise was gloriously fulfilled was told in the huge parade of over 400 floats of the various industries that passed between densely packed curbs on Broadway and Spring Streets, on Tuesday, May 18, the second day of Los Angeles Industrial Week of 1920. Just what it meant, reduced to figures, was that Los Angeles has over 2,700 industrial establishments, which manufacture more than one thousand varieties of products. Also that in the last six months this city has manufactured articles valued at $618,000,000—an increase of 60 per cent over that of 1918. It is no wonder that the faces of the thousands of boys and girls, men and women who rode or marched wore "the smile that won't come off," for it meant that never in the history of the country have the workers and manufacturers been so happy and prosperous.

That the gas companies and dealers in gas appliances have had a good share in this prosperity was evidenced by the attractive floats and window displays maintained by them during industrial week.

In the gas-electric section of the industrial pageant the W. H. Cain Gas Radiator Company had an interesting exhibit of their gas radiators, of both the open and closed variety. A large sign tacked to the side of the float read: "Heat Your Home for One Cent an Hour. Odorless, Poisonless, Money Back Guaranty. Made in Los Angeles."

The Los Angeles Gas & Electric Company had one of their windows fitted up as a living room, with a white mantel beneath which was a gas grate. They also carried out the spirit of Home Products Week by fitting up the room with furniture "made in Los Angeles." Another mantel at one side had a grate with gas logs. On a table close by was a box of Jack Frost marshmallow, made by a local candy factory, and several long sticks. A card suggested:

How to Enjoy Home Products Week to the Utmost

Invest in a box of "Made-in-Los-Angeles" marshmallows; seat yourself on a "Made-in-Los-Angeles" hassock; before a "Made-in-Los-Angeles" gas grate, and toast the candies to a delicious brown, ready to pop into the mouth of the fairest Maid in Los Angeles.

Stavnows, furniture dealers, anticipating the crowds that would be in the city during the week, and especially on the day of the industrial pageant placed in their window the model of a bride in white gown and veil, standing beside a gas range. The bride was labeled "The Fairest of Our Home Products." Through the columns of the newspapers they announced that the June bride of 1920 receiving the largest number of votes would be presented with the $75 gas range. Any woman contemplating getting married in June was eligible to compete. Everyone who desired could have one vote, and all that was necessary was to register in a book in the rear of the store and receive his ballot on which he wrote the name of his candidate. A similar card was placed in the window. The free offer naturally attracted lots of attention, and hundreds of people made their way to the rear of the store to vote—in this way having a chance to see all manner of home furnishings. There were several valuable consolation prizes provided, and the manager announced that every bride who received two or more votes would receive a remembrance. Not only did scores of people enter the store of their own accord, but hundreds of others were brought by the candidates and their friends to swell the list.

Wednesday was Harbor Day, at which time the delegates to the National Foreign Trade Convention, who had stopped off at Los Angeles to view the big industrial pageant, en route home from the convention in San Francisco, were the guests of the San Pedro Chamber of Commerce. The day's festivities included a lunch and a trip on boats around Los Angeles harbor.

The industrial celebration was brought to a close officially on Thursday, May 20, by the Home Products Luncheon, served at the Alexandria to 500 representative business men. Every item of food and every beverage was a Los Angeles product. The principal speakers were Sylvester L. Weaver, vice-president of the Chamber of Commerce, who spoke on "Miracles Made in Los Angeles," and George E. Roberts, vice-president of the National City Bank of New York and formerly director general of the United States Mint, who spoke on "Relation of Foreign Trade to Industry." The affair was brought to a close by an enthusiastic rendition of the official song based on the 1920 slogan, "Los Angeles — Nature's Workshop," to the tune of "Yankee Doodle." All present voted to make next year show an even larger volume of local production than the past two have done.

Burlington Gas Light Stockholders Meeting

At the Sixty-eighth annual meeting of the stockholders of the Burlington Gas Light Company, Burlington, Vt., the following directors and officers were elected:

S. P. Curtis, J. B. Townsend, 3d, and Morris W. Stroud of Philadelphia, and C. H. Darling and F. H. Parker of Burlington. President, F. H. Parker; vice-president, S. P. Curtis; treasurer, J. B. Townsend; secretary, D. W. Jardine.

Order For Transfer of Gas Plant Issued

An order issued by the California Railroad Commission authorizes the Union National Bank of Pasadena, Cal., to transfer to the Twin Cities Gas Company the gas plant which the bank obtained by foreclosure from the Riverside County Gas & Power Company. The plant was recently reconstructed and is now being used to supply gas to consumers in the cities of Beaumont and Banning, Cal.

The bank is to receive $24,700 of stock in the Twin Cities Gas Company and $15,000 of the company's bonds in payment for the plant.

The bank has also agreed to purchase $30,500 of bonds to cover the cost of reconstructing the plant.

Springfield Gas & Electric Asks 40 Cent Rate Increase

An increase of forty cents or from $1.10 to $1.50 per 1,000 cu. ft. for gas is asked by the Springfield Gas & Electric Company, Springfield, Ill., in a petition filed with the State Utilities Commission.

The new rates asked by the company are from $1.30 to $1.50 per 1,000 cu. ft. as against present rates of 90 cents to $1.10, with a minimum monthly charge of 50 cents.

Increased cost of fuel, oil and labor necessitates the jump in prices, according to the petition. It is further asserted that gas is now furnished to consumers at a price much lower than the actual cost of production. The proposed new schedule of rates, as compared with the old, follows:

	Present Rates		New Rates	
	Net	Gross	Net	Gross
First 10,000 cu. ft.	$1.10	$1.20	$1.50	$1.60
Next 10,000 cu. ft.	1.05	1.15	1.45	1.55
Next 30,000 cu. ft.	1.00	1.10	1.40	1.50
Next 150,000 cu. ft.	.95	1.05	1.35	1.45
Over 200,000 cu. ft.	.90	1.00	1.30	1.40

The petition recites that the price of gas coal has jumped from $5.43 a ton delivered in 1918 to $10.88, with indications of a continued increase in price, and in the year ending May 31, 1920, the company used 10,715 tons of gas coal, at an increased cost of $58,396.75.

The cost of oil at the plant increased $36,292.68 and labor costs show an increase of $20,127. The miscellaneous increase was $15,615, or a grand total increase of $130,431.43, the petition says. The actual increase of each 1,000 cu. ft. of gas produced by the company is $41.21.

Stating that an emergency exists, it asks the commission to grant it immediate relief in the form of an emergency order and then to proceed to determine the present value of the company's property, the correct allowances for depreciation and return and "a just and reasonable rate for the gas service furnished."

Steptoe Law Will Deprive Millions of Fuel

The Steptoe gas law enacted by the West Virginia Legislature prohibiting the transportation of natural gas from West Virginia until all the requirements of consumers there are met would, if upheld by the Supreme Court as legal, ruin many gas companies and virtually cut off the supply to many cities and thickly populated communities throughout Ohio and western Pennsylvania, according to testimony given by officers of various companies before Levi Cooke, a Washington lawyer, who is acting as master in the case and taking testimony for the highest tribunal of the nation.

The validity of the law is being contested by the State of Ohio and Pennsylvania and witnesses were heard in the offices of the Peoples' Gas Company, at Pittsburgh, for the past several weeks. The scene has now been shifted to Ohio and the hearings will be continued before the master in the Supreme Court room in the Ohio State Capitol at Columbus. Attorney A. C. Steptoe, of West Virginia, father of the statute, opposed adjournment and objected to "the short daily sessions and numerous adjournments" which have featured the hearing so far. Confidence was expressed that the taking of testimony could be concluded before Oct. 1, the time limit recently set by the Federal Supreme Court.

A population of 1,600,000 in Ohio will find natural gas a thing of the past if the Steptoe act is enforced, according to testimony given by Martin B. Daly, of Cleveland, president of the East Ohio Gas Company. The company has 348,000 subscribers in Ohio counties, including Cleveland. Mr. Daly testified that his company serves chiefly domestic consumers and it procures 80 per cent of its supply from West Virginia through the Hope Natural Gas Company. He stated also that if the act went into effect his company, a $47,000,000 corporation, would be wrecked financially.

Other witnesses from the States of Ohio and Pennsylvania, all interested either in gas distributing companies or municipal government, gave testimony to the same effect.

Gas Consolidation Deal Involves $1,000,000

Representing a valuation of between $750,000 and $1,000,000, the Santa Maria Gas Company, Santa Maria, Cal., acquired all the property of the Santa Maria Gas & Power Company, together with all gas properties of the Midland Counties Public Service Corporation in Santa Barbara and San Luis Obispo Counties, Cal.

The deal, according to R. E. Easton, secretary and manager of the Santa Maria Gas Company, also takes in the eight-inch gas and transportation line, 35 miles in length from the Santa Maria oil fields to Avila, in San Lius Obispo County.

"The consolidation of these properties will effect large economies in operation and will also prevent the duplication of the gas systems of the transferring companies," said Mr. Easton. "This will undoubtedly redound to the benefit of the consumers of the Santa Maria Gas Company and under the rulings of the State Railroad Commission they will no longer have to bear the large charges heretofore due through duplication of plant."

The Midland Counties Public Service Corporation is a subsidiary of the San Joaquin Light & Power Corporation, supplies electrical energy in about 12 counties in central California and is primarily a seller of electrical energy only. The sale will permit the Midland Counties company to devote its entire resources to meeting the demands of its constantly growing electrical business.

Extensive development involving expenditure of more than $6,000,000 are now being undertaken for the development of hydro-electrical energy, as well as the construction of a capacity steam plant to consume natural gas in the Elk hills district.

The Santa Maria Gas Company is the successor of the Santa Maria Gas & Power Company, a local corporation of Santa Maria people of which James F. Goodwin, of the northern city, is president, and R. E. Easton, secretary and manager. This particular company has been engaged in business in northern Santa Barbara County and southern San Luis Obispo County for the past 10 years, and with this consolidation will have approximately 4,000 consumers.